END RESULTS IN BENIGN LESIONS OF THE STOMACH SURGICALLY TREATED.*

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In making this analysis and cross analysis of 150 benign stomach lesions, the patients have been followed from the operating room to the present time in all but a few unimportant instances. Nearly all have come in the service of Dr. Bottomley or myself at the Carney Hospital, so that the use of the term end result is limited to a space covering four years. We believe, nevertheless, that that is ample time to settle the question of success or failure in a preponderating majority of cases. I have tried not to err on the unfavorable side in making my deductions, I have balanced each case as judiciously as possible, allowing for the personal element and for the morale in individual instances, as influenced by long and fruitless medical treatment.

Of the total number of 150 cases, 87 showed gross ulcers in the stomach, in the duodenum, or in both. Sixteen cases belong to the class of so-called medical ulcer, where no gross, palpable, lesion could be found at operation. Twenty-five more exhibited well marked adhesions without evidence of an active ulcer. Among our earlier cases there were 15 so-called neuroses, and, finally, we had 9 cases classed variously as ptosis, spasm of the pylorus, etc.

There are many types of gross lesion in which we have secured immediate and permanent benefit from the operation. Among these we should include, first of all, congenital pyloric obstruction, and perforated chronic ulcer. The wisdom of surgical intervention in cases of this class is so self-evident that

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we need not discuss it further. As to the question of immediate gastro-enterostomy in perforation, we believe that if, at the time of primary operation, the condition of the patient permits, an anastomosis is wise because it shortens convalescence and obviates the necessity for a secondary operation. The latter, however, gives good results and should be urged when patients have survived the preliminary operation. We have obtained good results also in (*a*), active ulcers near the pylorus but not necessarily occluding it; (*b*), in ulcers of the duodenum, with an occasional exception, which will be considered later; (*c*), in the gross chronic ulcers of the lesser curvature and anterior wall, in the pyloric half of the stomach, especially if there is active hæmorrhage; (*d*), in some cases of saddle ulcer; (*e*), in ulcers of the posterior wall, near the cardia, that infiltrate towards the upper edge of the stomach; (*f*), in ulcers of the lesser curvature when combined with adhesions that interfere with the gastric motility; (*g*), in some ulcers of the posterior wall when the pylorus is not mechanically interfered with; (*h*), in some ulcers at the œsophageal angle of the lesser curvature; (*i*), in ulcers of the greater curvature; (*j*), in hour-glass stomach; (*k*), in stricture of the pylorus; (*l*), in thickening of the pyloric ring without evidence of an active ulcer, and lastly, (*m*) in dilated, sagging stomachs secondary to some recent or early process in or near the pylorus, which mechanically interferes with the evacuation of the gastric contents.

In analyzing the partial successes in our gross ulcer cases, one must accept the patient's value of a disturbing symptom with some latitude. An invalid who, for years, has daily watched her digestive apparatus, will give undue prominence to eructation of gas, or to occasional attacks of vomiting while able, nevertheless, to eat heartily, to work hard and to maintain a normal body weight. In several failures in those types which, a priori, should have been completely cured, we found either a neurotic strain or some intercurrent disease, such as a severe cardiac asthma. A patient with a double hour-glass stomach, or with extensive ulcers and widespread adhesions, would not be completely cured because restoration to a normal

motility and to a normal secreting mucous membrane would be impossible on the face of it. Such patients, however, complain of symptoms so much less severe than those which obtained before operation, that we have no reason to feel otherwise than reasonably satisfied.

We have had definite failures in 2 duodenal ulcers and in 1 saddle ulcer, the condition being just as bad as it was before operation. From our experience in similar types, we had expected perfect results. To these failures we must add 2 cases of sudden bleeding (one being fatal) after complete relief for a year following gastro-enterostomy for duodenal ulcer. We also had a late, fatal, hæmorrhage in a case of extensive ulcer embracing both walls of the stomach. Experiences of this sort give us strong reasons for considering Rodman's plea for a more frequent excision, not only on the basis of relieving symptoms, but to prevent malignant degeneration and late hæmorrhage.

Among our gross ulcer cases there were 4 deaths directly attributable to technical failures. These came in the early period of our work. Other deaths were independent of the operation itself but consecutive to it. Patients that came to us after long periods of persistent vomiting were bad surgical risks, not influenced either way by a gastro-enterostomy. This type, among others, we have learned to leave alone. The deaths in congenital obstruction and in perforation of chronic ulcer, speak for themselves. In every case delay had been carried far beyond the limit of safety, and operation was advised as a dernier ressort. One patient with chronic anæmia, whose hæmoglobin was estimated at 15 per cent., died definitely from anæmia, but, as we had saved a patient with acute anæmia of corresponding degree by anastomosis, we felt justified in running the operative chance. Relapses after temporary relief took place in three cases. We can give no satisfactory explanation. Adhesions that kink the jejunal loop, peptic ulcer or other causes suggest themselves. That the anastomosis has not closed we feel very confident.

In 16 cases of so-called medical ulcer we found, as a rule,

hæmorrhage from the entire mucous membrane or from localized areas, but without any visible lesion. Every stomach, however, was not opened, the diagnosis being made on the clinical evidence of severe, acute, hæmorrhages or persistent, chronic, bleeding without palpable or visible lesion encountered at operation. Leukæmia and other general diseases were ruled out so far as lay in our power. We found an open, soft, pylorus in every instance. If there were ptosis or other evidence of a stomach draining itself poorly we obtained, by operating, a relief that was never more than incomplete. In two cases of medical ulcer we found the calcareous mesenteric glands to which Mayo has called our attention. Two alcoholics with severe hæmatemesis died promptly after operation from persistent vomiting. One woman with the typical history and symptoms of ulcer had persistent vomiting after a short-loop anastomosis. Pylorectomy was then done in desperation, but she continued to vomit steadily to death. Experiences in cases of this kind have taught us to close the abdomen when we are satisfied that there is no gross ulcer, no pyloric obstruction nor other crippling lesion. Without such positive evidence it is best to stop meddling with the stomach. If, in the so-called medical ulcer there is functional interference from ptosis, minor adhesions or other cause, it may be wise to make an anastomosis, but the surgeon need not count on the brilliant result that comes with typical ulcer and stenosis. Can we differentiate a medical case that is bleeding before operation? We believe that it is not always possible to do so. It is not infrequent that patients of this class are referred to us lacking the picture-complex of gross ulcer, and we are accustomed to refer them back to the medical wards for treatment. On the other hand, one of the largest ulcers that we have ever seen gave so typical a picture of the neurotic medical ulcer that we operated only on the general principle of "when in doubt, operate."

In 25 cases of adhesions without evidence of an active chronic ulcer, we obtained excellent results in all but 6, and of these 2 complain only of some eructation of gas. Two patients

with persistent vomiting before operation continued to vomit until death two and one-half and four weeks later. The adhesions for which we operated were, for the most part, firm bands or masses that extended from the pylorus or duodenum to the gall-bladder region. In many the pylorus was open but the functions of the stomach were evidently so interfered with that some relief to the food current was imperative. In a few we found the stomach dragged down by adhesions of the omentum to the pelvic scars of former operations. We often found merely the induration of an ulcer active at some former period, but at other times the adhesions were too dense and extensive to allow proper examination. Intercurrent gall-stones or other surgical lesions were dealt with at the same operation.

The worst subjects for interference were those classed as neurotics. Believing at the beginning of our work that the lack of gastric drainage was the main factor in the production of the protean symptoms in these patients, we undertook to relieve the distress by establishing free drainage. Most of the cases were made worse. In this respect it is interesting to note that quite recently, after exploring a neurotic that had been vomiting for a long time, and finding no causative lesion, the symptoms persisted until death two and a half months later. Three neurotic patients derived some benefit; one had a dilated, prolapsed stomach, another had a dilated duodenum and stomach, while the third had typical cardiospasm secondary to an irritable pylorus which was relieved by a Finney pyloroplasty. Some of these neurotics had severe hæmorrhages coming periodically both before and after operation when the neurotic storm was at its worst. A gastro-enterostomy would be followed in the course of a few weeks by regurgitation of bile. If we then made an entero-anastomosis and, perhaps, later closed the pylorus, the result was just as bad. Recently one of our most annoying victims allowed us to restore his gastric apparatus to its original anatomical arrangement with instant relief. Many of the patients had stomachs that were moderately dilated or prolapsed. Others exhibited scars on the serous coat, but in not a single case did we find a gross ulcer

or other crippling lesion. Sufferers of this class are still sent to us with remarkable frequency by the internist who has been battling with the condition for years, but it is needless to say that we refuse to interfere.

If, now, we study the results as they bear on the type of operation employed, it is evident that the simpler the technique and the nearer it follows anatomical lines, the better the result. The first method used is that commonly known as the Moynihan, beginning with the long and ending with the short loop. In this method the gastric and jejunal currents pass to the right, that is, in the same direction, the stomach opening being slit-like with its long axis practically in the direction of the food-current. Success with this operation came in patients with gross lesions where the establishment of drainage was a pre-requisite factor. Failure naturally came in the medical ulcer and in the neurotic, but there were enough of the adhesion and gross ulcer type that had regurgitant vomiting to make us look for a substitute. Occasionally we were induced to reoperate, making an entero-anastomosis with a fair degree of success. We then tried the posterior gastro-enterostomy with primary entero-anastomosis, with rather better success, but still having an occasional case of regurgitation. Going then to the Roux operation-in-Y, modified by making both anastomoses with the clamp and suture, we were gratified by almost complete success. Unfortunately, however, the technique is somewhat complicated. We tried this method on one of our worst neurotics, feeling that bilious regurgitation would be impossible, especially if the pylorus were closed artificially. Nevertheless we were disappointed to find that almost constant regurgitation ensued. This demonstrated that the mechanics of a gastro-enterostomy may play a very unimportant rôle under certain circumstances, but conversely, we believe that almost any form of anastomosis will cure many cases of gross lesion. Following Mayo's lead we then adopted the no-loop operation, first with the longitudinal gastric slit, and later with the opening in the stomach transverse to the gastric stream. Here the jejunum points to the left as normally obtains in the majority

of cases. With each modification our results improved and we found less and less regurgitation until now we look for success as regards function if we select the proper cases for gastro-jejunostomy at the outset.

In the meanwhile we had used Finney's method of pyloroplasty in suitable cases, preferring it to Kocher's gastroduodenostomy as being simpler and more rational. The immediate results were more slow to manifest themselves in the individual case, but the end results were good. Finney, in a recent report of his own cases, shows that the method is suitable to a wider range of lesions than came within our application. He has obtained good results in active ulcers of the main body of the stomach, etc., and his conclusions are undoubtedly well worth consideration.

Excision of the ulcer-bearing area, which is likewise the cancer area to a great extent, would be the ideal process in all suspicious cases beyond middle life. But is it possible to insure against a fatal operative outcome as in simple gastro-enterostomy? Unfortunately many patients come late, with little power of resistance owing to prolonged starvation, anæmia and loss of courage. We cannot yet feel that our own technique is sufficiently reliable to make us have no hesitation in the choice of operation. Certain ulcers, extensive, brawny and of poor tissue to make repair, should be excised when by so doing the gastric function will not be impaired. In others we should make a partial gastrectomy, being willing to assume some additional risk if we can fend off a probable malignant degeneration or prevent a late hæmorrhage from an ulcer that is not capable of healing. This latter calamity happened in a few of our cases. The decision for the type of operation in such instances is individual, depending upon the surgeon's experience as well as upon the patient's condition.

We must confess that there are certain ulcers which at operation cannot be differentiated from cancer. In patients of this class, reduced by starvation and anæmia, we have lacked the courage to perform a radical operation and have been agreeably surprised to find that lapse of time has settled the

diagnosis of a benign lesion when our clinical diagnosis was that of carcinoma. Fortunately the reverse has happened much less often. As a rule the typical cancer is unmistakable, but in our experience of over 100 operations for cancer we have had only about 10 in which radical excision was possible; a proportion discouragingly smaller than that which has come in the experience of Kocher, Mayo and others.

After reopening a number of abdomens at varying intervals after anastomosis, we have failed to find any indication of closure of the opening when made with the clamp and suture. On the other hand the openings seem to enlarge, and this whether there is a functionating pylorus or not. With the Murphy button we have been less fortunate. Twice have we been obliged to substitute the clamp and suture anastomosis. One of these took place in a gastrectomy for cancer where there was no pyloric opening, and the other in a posterior operation for acute hæmorrhage. For this reason we make use of the button only in cases where speed or inaccessibility is an important factor. We have no definite data as to the occurrence of peptic ulcer. Such a lesion may explain the late unheralded hæmorrhage in two of our cases of duodenal ulcer. Rarely coming in the posterior operation, as statistics show, we believe the fear of this accident is a small contraindication in cases otherwise suitable for operation.

The simplicity, cleanliness, rapidity and safety of the clamp and suture operation are strong arguments at the present time against any substitutes. Complicated or so-called time-saving instruments, are unnecessary. A pair of simple rubber-covered clamps and a needle and thread should suffice in practically all cases. We prefer linen in the serous layer and fine chromic gut in the musculo-mucous layer. Ether given intelligently and in minimum doses, closure of the omental bursa against hernia and the elevated head position after operation assist in reducing the danger of the operation per se to a minimum. It is conservative to maintain that herein we have a very safe therapeutic remedy for most of the benign lesions of the stomach and duodenum. Further study, broader opera-

tive experience combined with associated medical observation, will soon enable the physician as well as the surgeon to accept suitable cases with a large promise for immediate and permanent cure. When relief does come it surpasses that obtained in almost any other type of suffering. It dispels the pain and distress of dyspepsia, the agony of slow starvation and the terror of hæmorrhage or perforation. Perhaps more than all it eliminates in a larger proportion of cases than is commonly realized, the chance of engrafted malignancy.